
North Carolina Cooperative Extension Service



Water Quality &
Waste Management

Hazardous Household Products

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Published by: North Carolina Cooperative Extension Service

Publication Number: HE-368-1

Last Electronic Revision: March 1996 (JWM)

Many of the products we use for housework, gardening, home improvement, or car maintenance contain hazardous materials that endanger our health as well as pollute the environment. The average house has an estimated three to 10 gallons of hazardous products.

Collectively, these materials can contaminate our drinking water if they are not stored carefully and disposed of properly. In addition to poisoning our water, inappropriate use and disposal of hazardous household products can cause injuries, poisoning and air pollution.

What Makes A Household Product Hazardous?

Household products are hazardous if they are:

- *Ignitable* - capable of burning or causing a fire
- *Corrosive* - capable of eating away materials and destroying living tissue when contact occurs
- *Explosive and/or Reaction* - can cause an explosion or release poisonous fumes when exposed to air, water or other chemicals
- *Toxic* - poisonous, either immediately (acutely toxic) or over a long period of time (chronically toxic)
- *Radioactive* - can damage and destroy cells and chromosomal material (known to cause cancer, mutations and fetal

harm)

How Do You Know If A Product is Hazardous?

The Federal Hazardous Substances Act of 1960 established labeling requirements for consumer products containing hazardous substances. If a product has a hazardous substance, the front label must include a warning and a description of the hazard.

Levels of hazards are identified this way:

DANGER - substances which are extremely flammable, corrosive or highly toxic.

POISON - substances which are highly toxic.

WARNING, or **CAUTION** - substances which are moderately or slightly toxic.

A statement telling you how to avoid the hazard must appear with safe use instructions. Examples might be **KEEP OUT OF REACH OF CHILDREN** or **USE IN A WELL-VENTILATED AREA**.

As a consumer you should make it a habit to read hazardous product labels. These labels must include the following information:

1. Brand Name
 2. Common and/or Chemical Name (Example: sodium hypochlorite or bleach)
 3. Amount of Contents (example: 16 oz.)
 4. Signal Word - Danger, Poison, Warning or Caution
 5. Instructions for Safe Handling and Use (example: recommended amount to use)
 6. Name and Address of Manufacturer, Distributor, Packer or Seller
 7. Description of Hazard and Precautions (example: Irritant to skin and eyes, harmful if swallowed)
 8. First Aid Instructions, when necessary or appropriate (example: If swallowed, feed milk).
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Pesticides Are Different

Regulations concerning pesticides are different. On pesticides, the word "warning" means that the product is moderately toxic. This means that one teaspoon to one ounce can kill an average adult. The word "caution" means that the product is slightly toxic. It would take over one ounce to kill an average adult.

What Don't the Labels Tell?

Label information is directed at "acute" or immediate effects only. You are not given information about "chronic" or long-term hazards of chemical products, such as cancer or birth defects.

There are other concerns about labels, as well. Some products contain ingredients that have not been officially recognized by

the federal government as hazardous but still are cause for concern. "Inert" ingredients are chemicals added as "carriers" for the active ingredients in cleaners and pesticides. Only the percentage of inert ingredients are required on the label, not their identity. Some inert ingredients are hazardous.

There is no standardized list of chemical names. Many chemicals have numerous trade and/or scientific names. This makes it hard for you to compare products. Antidotes listed on the label may be incomplete, out-of-date, or even dangerously wrong. According to a 1984 report by the National Academy of Sciences, less than 2 percent of all new and existing chemicals have been tested sufficiently to allow a complete health hazard assessment.

Also, many labels do not tell you how to dispose of a product safely.

The use of the term "non-toxic" is for advertising only. It has no regulatory definition by the federal government.

It is very important that you know as much as possible about products before you use them so that you can adequately protect yourself. If a product label does not provide ingredients or adequate instructions on safe use, look for another product that has a more complete label.

Types of Hazardous Household Products

Most hazardous household products can be grouped into four major categories:

- *Automotive products* which are hazardous include motor oil, brake and transmission fluid, antifreeze and car batteries, gasoline, kerosene, diesel fuel, and car wax with solvent.
- *Household cleaners* include drain cleaners, oven cleaners, toilet cleaners, spot removers, silver polishes, furniture polishes, cleansers and powdered cleaners, window cleaners, bleach, liquid cleaners, dyes.
- *Paints and solvents* include latex, oil-based, auto and model paint, paint stripper, primer, rust remover, turpentine, varnish, wood preservative, mineral spirits, glues.
- *Pesticides*. (For more information on pesticides, see How to Choose and Use Household Insecticides, AG-392, by R.C. Hillmann.)

Other hazardous products include: aerosol products, dry cell and disc or button batteries, hearing aid batteries, moth balls and flakes, shoe polish, photographic chemicals, smoke detectors and air fresheners and deodorizers.

Let's take a closer look at hazardous ingredients and their effects on people. Study the information in the following chart.

Hazardous Household Products

Product Type	Possible Ingredients	Potential Hazards
Air fresheners irritant to eyes, nose, throat and skin; may cause nausea, and deodorizers dizziness, memory loss, and shortness of breath	Formaldehyde	Toxic; carcinogen; headaches, nose bleeds,
Antifreeze be fatal to adult; damage to cardiovascular system,	Ethylene glycol Methanol	Very toxic; 3 ounces can blood, skin and kidneys Moderately toxic;

ingestion may cause coma. respiratory damage

Bleach Sodium hypochlorite
burns skin, eyes, respiratory tract; may cause pulmo-
and coma if ingested; contact with other chemicals

Corrosive; irritates or
nary edema or vomiting
may cause chlorine fumes

Car Wax, Polish Petroleum distillates
lung cancer; irritant to skin, eyes, nose, lungs; entry
fatal pulmonary edema

Associated with skin and
into lungs may cause

Disinfectants Sodium hypochlorite
or burns skin, eyes; may cause pulmonary edema. or vom-

Corrosive; irritates
iting and coma if ingested
Flammable; very toxic;

Phenols
respiratory, circulatory or cardiac damage
Ammonia
respiratory tract and skin; possible chronic irritation

Vapor irritating to eyes,

Drain Cleaner Sodium or potassium
inhibits reflexes; burns to skin, poisonous if
hydroxide (Iye)
tissue damage

Caustic; irritant;
swallowed due to severe

Hydrochloric acid
damage to kidney, liver and digestive system
Trichloromethane
eyes; central nervous system depression, liver
ingested

Corrosive, irritant;

Irritant to nose and
and kidney damage if

Flea Powder Carbaryl
with human nervous system; may cause
cardiovascular system damage

Very toxic; interferes
skin, respiratory system,

Dichlorophene
damage liver, kidney, spleen and central

Skin irritation; may
nervous system

Chlordane and other
accumulates in food chain; may dam-
chlorinated hydrocarbons
kidneys and skin

Very slow biodegradation;
age eyes, lungs, liver,

Floor Cleaner/Wax Diethylene Glycol
nervous system depression and kidney,
lesions

Toxic, causes central
liver

Petroleum Solvents
associated with skin and lung cancer, irritant

Highly flammable;
to skin, eyes, nose,

throat, lungs	Ammonia	Vapor irritation to eyes,
respiratory tract and skin; possible		chronic irritation
Furniture Polish	Petroleum distillates or	Highly flammable,
moderately toxic, associated with skin and	Mineral spirits	lung cancer, irritant to
skin, eyes, nose, throat, lungs, entry into		lungs may cause pulmonary
edema		
Over Cleaner	Sodium or potassium	Caustic; irritant,
inhibits reflexes; burns to skin, eyes; poisonous	hydroxide (Iye)	if swallowed due to
severe tissue damage		
Paint Thinner	Chlorinated aliphatic hydrocarbons	Slow decomposition; liver
and kidney damage		
	<i>Esters</i>	<i>Toxicity varies with</i>
<i>specific chemical; causes eye, nose and</i>		<i>throat irritation and</i>
<i>anesthesia</i>		
	Alcohols	Volatile and flammable;
eye, nose and throat irritation		
	<i>Chlorinated aromatic hydrocarbons</i>	<i>Flammable; toxicity</i>
<i>varies with specific chemical; may cause</i>		<i>respiratory ailments</i>
	Ketones	Flammable; skin irritant;
benzene is a carcinogen; possible liver		and kidney damage
Paints	Aromatic hydrocarbon thinners	Flammable; skin irritant;
benzene is a carcinogen; possible liver		and kidney damage
	<i>Mineral spirits</i>	<i>Highly flammable; skin,</i>
<i>eye, nose, throat, lung irritant; very high</i>		<i>air concentrations may</i>
<i>cause unconsciousness, death</i>		
Motor Oil/Gasoline	Petroleum hydrocarbons (benzene)	Highly flammable;
associated with skin and lung cancer; irritant		to skin, eyes, nose,
throat, lungs; plumonary edema; benzene is a		carcinogen
	<i>Lead</i>	<i>Damage to digestive,</i>
<i>genitourinary, neuro-muscular and central</i>		<i>nervous system; anemia</i>
<i>and brain damage</i>		

Spot Removers and kidney damage; perchlorethylene trichloromethane <i>Ammonium hydroxide</i> <i>extremely irritable to skin, eyes and respiratory</i> <i>causes tissue burns</i>	Perchlorethylene or trichloromethane <i>Ammonium hydroxide</i>	Slow decomposition; liver is suspected carcinogen <i>Corrosive; vapor</i> <i>passages; ingestion</i>
skin, eyes, respiratory tract; may cause pul- burns	Sodium hypochlorite	Corrosive, irritates monary edema and skin
Toilet Bowl Cleaner skin contact or inhalation; ingestion may be hypochloric acid <i>Chlorinated phenols</i> <i>respiratory, circulatory or cardiac damage</i>	Sodium acid sulfate, oxalate or hypochloric acid <i>Chlorinated phenols</i>	Corrosive; burns from fatal <i>Flammable; very toxic;</i>
Window Cleaners nervous system depression and degenerative kidneys <i>Ammonia</i> <i>respiratory tract and skin; possible chronic</i>	Diethylene glycol <i>Ammonia</i>	Toxic; causes central lesions in liver and <i>Vapor irritating to eyes;</i> <i>irritation</i>
Wood Stain/Varnish associated with skin and lung cancer; irritant to lungs; entry into lungs may cause fatal <i>Benzene</i> <i>accurnulates in fat, bone marrow, liver</i>	Mineral spirits, gasoline <i>Benzene</i>	Highly flammable; skin, eyes, nose, throat, pulmonary edema <i>Flammable; carcinogen;</i> <i>tissues</i>
genitourinary, neuro-muscular and central nerv- brain damage	Lead	Damage to digestive ous system; anemia and

Notes:

1. The potential health hazards in this table are symptoms of acute poisoning and may be experienced as a result of high exposure or direct ingestion.
2. This table has been reviewed for accuracy by the Department of Environmental Quality Engineering, Division of Hazardous Waste and the University of Massachusetts, Department of Health and Safety.
3. Reaction to products may vary depending on length of exposure and concentration of the product and individual sensitivity to certain chemicals.

Exposure to Hazardous Products

Hazardous substances may enter your body in three ways ingestion, inhalation and absorption through the skin.

Toxins can be ingested by eating or drinking hazardous substances or contaminated food and water. Ingestion is a major cause of poisoning in children 6 and under. Keep the hazardous products out of the reach of children and in a locked area.

When you are working with hazardous products, avoid putting anything in your mouth. Don't eat, don't smoke, don't drink, don't even place things that enter your mouth in the work area. When you're finished remove any contaminated clothing and wash your hands (and other exposed body parts) with soap and water. Then you can put something in your mouth.

Toxins can be inhaled. Gases, vapors, and sprays pass directly through the lungs and enter the blood. That is why good ventilation is essential. When you are working inside, use a fan to direct air away from the work area to open windows. Air conditioners do not provide sufficient ventilation since they recirculate air, even when set on "vent." Thus they do not remove contaminants. If you can smell a toxic chemical, your ventilation is not sufficient (although some harmful chemicals have no odor). Use a mask or respirator to protect yourself.

Toxins can be absorbed through the skin. Hazardous products containing irritants or corrosives will injure the skin and then are absorbed. Some hazardous chemical can be absorbed without causing any damage to the skin. Wear gloves and/or protective clothing. Your eyes also are vulnerable to injury. Many hazardous products can cause eye damage if splashed into the eye. Oven cleaners, drain cleaners, and paint thinners are just three examples.

Wear goggles when working with these products. Regular eyeglasses do not provide enough protection. Do not wear contact lenses (especially soft lenses) when working with hazardous products. The lenses absorb the vapors and then hold the irritant against your eye. Safety goggles are inexpensive and can be purchased at hardware, automotive supply and farm equipment stores.

Selection, Use and Storage Of Hazardous Household Products

Select the right product . . .

When you go shopping for products, your selection can be your first step toward minimizing danger. Follow these guidelines:

- Read the label. Make sure you want the product. Are the ingredients safe to use in and around your home?
- Make sure the product will do the job you need to have done.
- Buy the least hazardous product for the job. Let the signal words (Poison, Danger, Warning, Caution) be your guide.
- Check the label to see if a product has several uses. Then you can avoid buying a different product for each job.
- Avoid aerosol products. Aerosol products may contain hazardous or toxic propellants, and the fine mist that they produce may be more easily inhaled. Pressurized cans cause problems or explode when they are crushed, punctured or burned.
- Make sure you know how to properly dispose of the container.
- Remember, the word "non-toxic" is for advertising only. It does not mean the product meets any federal regulations for non-toxicity.

Use it safely . . .

It may be impossible to totally eliminate hazardous products in your home. The following guidelines will help you when using

hazardous products to keep your home and environment safe.

- Read the directions on the label and follow them. Twice as much doesn't mean twice the results.
- Use the product only for the tasks listed on the label.
- Wear protective equipment recommended by the manufacturer.
- Handle the product carefully to avoid spills and splashing. Close the lid as soon as the product is used. This will control vapors and reduce chances of spills. Secure lids tightly.
- Use products in well-ventilated areas to avoid inhaling fumes. Work outdoors if possible. When working indoors, open windows. Use a fan to circulate the air toward the outside. Take plenty of fresh-air breaks. If you feel dizzy, headachy or nauseous take a break and go outside.
- Do not eat, drink or smoke while using hazardous products. Traces of hazardous chemicals can be carried from hand to mouth. Smoking can start a fire if the product is flammable.
- Do not mix products unless directions indicate that you can safely do so. This can cause explosive or poisonous chemical reactions. Even different brands of the same product may contain incompatible ingredients.
- Use it all up.
- If pregnant, avoid toxic chemical exposure as much as possible. Many toxic products have not been tested for their effect on unborn infants.
- Avoid wearing soft contact lenses when working with solvents and pesticides. They can absorb vapors and hold the chemical near your eyes.
- Carefully and tightly seal products when you have finished. Escaping fumes can be harmful and spills can occur.

Most important of all: Use common sense.

Store it safely in your home . . .

- Follow label directions for proper storage conditions.
- Leave the product in its original container with original label attached.
- Never store hazardous products in food or beverage containers.
- Make sure lids and caps are tightly sealed.
- Store hazardous products on high shelves or in locked cabinets out of reach of children and animals.
- Store incompatibles separately Keep flammables away from corrosives.
- Store volatile products—those that warn of vapors and fumes in a well-ventilated area, out of reach of children and pets.
- Keep containers dry to prevent corrosion.
- Store rags used with flammable products (furniture stripper, paint remover, etc.) in a sealed marked container.
- Keep flammable products away from heat, sparks or sources of anything that could ignite them.
- Know where flammable materials in your home are located and know how to extinguish them.

In Summary

An astounding array of hazardous products can be found in and around our homes. They are in common, everyday household products as well as in pesticides. While we cannot eliminate all contact with toxic materials we can minimize the contact.

- Make informed decisions about the selection, use and storage of hazardous products.
- Remember hazardous products may be: *flammable, explosive/reactive, corrosive/caustic, toxic/poisonous or reactive*.
- Learn to read the labels. Look for the signal words. POISON means highly toxic. DANGER means extremely flammable or corrosive or highly toxic. WARNING or CAUTION means less toxic.
- Lastly, use common sense when using and storing hazardous products to decrease the potential health hazards and pollution.

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